REMARKS

A. Background

Claims 1-18 were pending. The Office Action rejected claims 1-18 under 35 U.S.C. §103(a), as being unpatentable over U.S. Patent No. 5,778,256 to Darbee (hereinafter "Darbee"). Claims 8-15 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By the present response, applicants have amended claims 5 and 8 and added new claims 19 and 20. As such claims 1-20 are presented for the Examiner's consideration in light of the following remarks.

Paragraph 4 of the Office Action indicates that in lines 15-16 of independent claim 8, there is no antecedent support for "the PDA housing" thereby making claim 8 indefinite. The Examiner explains that the correct term should be --the PDA case--, not "the PDA housing." The Office Action explains that claims 9-15 all depend, directly or indirectly, from claim 8 and thus inherently contain the same indefiniteness.

The Office Action in paragraph 6 rejected claims 1-18 under 35 U.S.C. § 103(a) as being unpatentable over Darbee. Darbee discloses an apparatus comprising a PDA and an adapter that can be removably electrically coupled together. The Darbee adapter includes, *inter alia*, a microprocessor and one or more light sources (e.g. LED's) configured to emit infrared light beams. Outside of physical construction, one of the major differences between the apparatus of Darbee and that of applicant's claims is that Darbee is a "transmit only" arrangement - i.e. there is no optical receiver included in the adapter. Exemplary Functions performed by the Darbee apparatus include remote control of infrared activated electronic devices such as a TV, VCR, cable box, cable player, radio receiver, tape deck, remote control of infrared activated automation equipment, etc.

B. Proposed Amendments to Specification and Claims

Figure 1 is amend to correct a drafting error related to the designation line for a housing 9. Supporting disclosure for this amendment is found on page 6, lines 5 and 7. Arrow tips were added to adapter 10 and PDA 12 to correctly designate the respective components in Figure 1.

The Specification is amended to correct typographical errors on pages 2, 4, 7, and 8. Support for the amendment to pages 7 and 8 are found in Figure 2, where a simple block diagram of a host computer 70 is illustrated. Support for the amendment to page 6 is found in claim 8 as originally filed. As the amendments make the Specification consistent internally, no new matter is added.

Claim 5 is herein amended to recite that the adapter is dependent from claim 2, to emphasize the increased transmission rate and distance possible for a digital signal by the applicant's invention when using a laser. Applicant respectfully submits that the amendment to claim 5 is supported by disclosure found in the Specification on pages 8-10, specifically, page 8, lines 8-12, "where light source 44 is a laser, the above configuration can be used to download data from PDA 12 to host computer 70 over an extended distance."

Paragraph 4 of the Office Action rejected claims 8-15 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By this response, applicant has amended claim 8 to be "the PDA case" in accordance with the Examiner's suggestion. Claims 9-15 all depend, directly or indirectly from amended claim 8 and thus inherently enjoy the benefits of the Examiner's suggested amendment to claim 8. No new matter is added by the claim amendment, since "the PDA case" was previously described in claim 8, line 2, as "a low profile box shaped case" and lines

4-5, as "the case of the PDA." In view of the foregoing, Applicant respectfully requests that the rejections to claims 8-15 under 35 U.S.C. §112, second paragraph to be withdrawn.

New claims 19 and 20 find their support from the Specification. Claim 19 finds its supporting disclosure on page 8 and Figure 2. The light source discussion specifically states, "Where light source 44 is a laser, the above configuration can be used to download data from PDA 12 to host computer 70 over an extended distance. In one embodiment, light source can be used to download data to host computer 70 over a distance greater than about two feet, preferably greater than about five feet, and more preferable greater than about ten feet." Claim 20 finds supporting disclosure on page 10. The transmission rate discussion includes this enabling excerpt, "From a practical standpoint, downloading information from PDA 12 to computer 70 requires a bit rate of about 20 kbps or higher. In contrast, operation of a remote-controllable device requires a bit rate of about 10 bps."

In view of the foregoing, Applicant respectfully submits that the drawing amendments, claim amendments, specification amendments, and new claims do not incorporate new matter and entry thereof is respectfully requested.

C. Rejections on the Merits

Paragraph 6 of the Office Action rejected claims 1-18 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,778,256 to Darbee (hereinafter "the Darbee patent"). The Office Action states that the Darbee Patent discloses:

> an apparatus comprising a PDA and an adapter therefor, ... the PDA 10 and the adapter 12 can be separate elements which are removably electrically coupled together. The adapter 12 includes, *inter alia*, a microprocessor, and one or more light sources (e.g. LED's) configured to emit infrared light beams.

The Office Action further states that a modification of the Darbee Patent to include a

> "transmit and receive" arrangement would have been obvious to a person of ordinary skill in the art, because it would have occurred that such an apparatus could also be used for interactive control of electronic devices or automation equipment.

Furthermore, the Office Action states that the Darbee patent uses infrared light sources that "are light emitting diodes (LEDs), but clearly other equivalent infrared light emitters could be used as well." Finally, the Office Action states that the Darbee patent includes

> switching means in the adaptor 12 for turning the light sources on and off. Since the infrared beam transmission parameters include encoding and data format, it is clear that the analog electrical signals are converted to digital form for actual transmission. The employment of any particular known means for digital conversion (e.g. an on/off LCD) would have been obvious to a person of ordinary skill in the art.

Applicant respectfully disagrees.

The Office Action correctly identifies that the Darbee patent is a "transmit only" arrangement, but attempts to extend its functionality explaining that such an apparatus "could also be used for interactive control of such electronic devices or automation equipment, thus requiring one or more infrared receivers in the adapter 12." In contrast, the Darbee patent teaches, "The function of such an infrared generating and transmitting device 12 is to enable the PDA to be capable of direct remote control of infrared (IR) operated devices such as video and audio entertainment systems and other IR operated systems," Col. 3, lines 7-12. The Darbee patent focuses on control, not interactive communication. This position is further supported by the Darbee patent specification summary, where it states, "more specifically, it (the IR generating and transmitting device) enables the PDA 10 to be used as a remote control for controlling IR controlled devices such as televisions, VCRs, garage door openers, IR controlled lighting systems, and other IR controlled devices" Col. 7, lines 22-26. There is no need for interactive communication with any of the devices listed by the Darbee patent and as

such no motivation by one skilled in the art to combine teachings. As such, applicant respectfully submits that the Darbee patent neither discloses nor suggests "a photo detector electrically coupled to the micro controller" as required by claim 1. MPEP 2143.03 requires that all claim limitations must be taught or suggested. In re Royka, 490 F.2d 981, 180 USPQ 580 (C.C.P.A. 1974).

Furthermore, MPEP § 2143.01 states that the mere fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient to establish obviousness. Ex parte Levengood explains that a statement applying modifications of the prior art as being within "the ordinary skill of the art" is not sufficient without some objective reason to combine the teachings, 28 USPQ2d 1300 (BD. Pat. App. & Inter. 1993). As previously mentioned neither the Darbee patent or the capabilities of one skilled in the art provide an objective reason to combine "an infrared generating and transmitting device" for remote control of video and audio equipment with "a photo detector." In fact the two predominate uses of inventive photo detector are to quickly and easily download information into the PDA from either reflected light off a bar code or from a computer without having to electrically couple the PDA to the host computer. Both of these functions bring information to the PDA, as opposed to the exclusive transmission arrangement found in the Darbee patent.

Furthermore, even assuming *arguendo* that the Darbee Patent did provide an objective reason to include a photo detector, the proposed modification cannot change the principle of operation of a reference. Here the principle operation of the Darbee patent is to "cause IR code signals to be transmitted to a target device to be controlled" Col. 6, lines 5-6. The primary method of accomplishing this transmission is through LEDs. As mentioned in the applicant's specification, "It is noted that the operation of adapter 10 for downloading information to computer 70 is different than operation of adapter 10 for remote control of a device" page 10

lines 18-19. This is because the bit transfer rates, beam signal types, and beam formats are substantially different from those used in the Darbee patent. From a practical standpoint data transfer between a PDA and a computer should obtain a bit transfer rate of about 20 kbps or higher. In contrast, the operation of a remote controllable device requires a bit transfer rate of only about 10 bps. The applicants invention is able to accomplish both bit transfer rates "by loading appropriate software in PDA" to allow the PDA or adapter microprocessor to emit low speed pulses from the light source. There is no such ability to vary the transmission rate in the Darbee patent.

The beam signal type emitted from the Darbee patent is a digital signal. The transmitted signal is generated by the Darbee patent using two types of control functions that are coded into the PDA memory. The first control function type specifies a class of device (TV, VCR, cable box, CD player, radio receiver, tape deck, etc.) and the second control function type specifies the a particular device make and/or model. Following a selection, these two control function types are sent to a code library for interpretation so that pre-established digital command signals may be sent from the adapter to control the device. The beam signal type is significant for two reasons. First, the signals generated by the Darbee patent are exclusively digital in nature, while the applicants invention receives both digital and analog signals. In fact, claim 3 requires that there be "means electrically coupled to the microcontroller for converting electrical signals between analog and digital." Claim 9 requires the micro processor to be, "electrically coupled with the analog to digital converter." The significance of these statements is that while both the Darbee patent and the applicant's invention transmit a digital signal, only the applicant's invention discusses receiving an analog signal. The second reason that beam signal type is important relates to how the signal is created. Specifically, the existence of a code library in the Darbee patent specifically teaches

against interactive control. In a code library all of the necessary control codes are contained within the library so there is no reason to obtain information from the device being controlled. Generally, these libraries are formed using a look-up table, with the device type as one parameter and the make or model as the other parameter. These parameters point to a group of transmission control codes independent of outside factors. This mechanical non-interaction is a strong contrast to the applicants inventions as described in claim 1, that contains "a photo detector electrically coupled to the micro controller," claim 8 "a photo detector at least partially position in the free end of the arm," or claim 16 "a photo detector is positioned at the top end of the housing and is configured to receive reflected light from the laser." If the proposed modifications or combination of the prior art would change the principle operation of the prior art invention being modified, then the teachings of the reference are not sufficient to render the claims obvious. In re Ratti 270 F.2d 810, 123, USPQ 349 (C.C.P.A. 1959).

The primary function of the invention in Darbee is found in column 1, line 19 "the IR code generating and transmitting device of the present invention coupled to or incorporated into a PDA expands the usefulness of the PDA by enabling the same to be used for direct remote control of IR activated devices such as video (TV and VCR) and audio (CD and cassette player) equipment as well as IR activated home automation equipment. By adding a directional laser as suggested in the Office Action, this ability to control the IR activated devices would be hindered. For example, the Darbee device is primarily intended to be used in an non-congested area and specifically the emitter disclosed is a broadband LED. This enables a user to change the radio or TV from any point in the room without having to line up the IR device with another IR receiver. This is a strong contrast to the present invention that uses a focused beam laser, wherein "the laser emits a visible red light that is sufficiently collimated to function as a pointer" as required by claims 12 and 18. The applicant's invention

focuses on providing a more accurate selection and focused data stream at a much higher transmission rate. If the broadband transmission technology disclosed by Darbee were used with the present invention, it would enable important data characteristics to be stolen from the data transfer between the host computer and the PDA. The modified Darbee device, as proposed by the Office Action, would also need to be closer to the controlled device to avoid substantial data loss or degradation. Furthermore, the present invention is categorized as being used to scan information into the PDA. Within Darbee, the references for receiving data specifically refer to receiving data from the PDA to the adaptor IR device. There is no mention of the Darbee adapter being used to receive information from outside sources or acting in an interactive fashion with the TV, radio, or other automated electronic devices. As such, the proposed modification would dramatically change the device as disclosed in Darbee.

Finally, the applicant respectfully requests the Examiner to consider the substantial functional structural differences between the construction of the Darbee patent and the construction of the applicant's invention. As can be seen from claim 8, the applicant's adapter comprises "a substantially L-shaped housing comprising a base and an arm" wherein the "photo detector" is at least partially positioned in the free end of the arm. This physical configuration creates a substantial difference between the Darbee patent and the applicant's invention, because the applicant's invention does not increase the thickness of the PDA. One design constraint of a PDA is to maintain its compact nature, the applicant's invention maintains this structure through an L-shape to minimally increase the width and length of the PDA while still being able to maintain a near pocket size for the overall combination PDA and adapter. In contrast, the Darbee patent discloses an adapter which attaches to the bottom of the PDA thereby increasing the thickness. The L-shaped housing also couples better to the PDA by increasing the frictional edges between the adapter and the PDA case. While the

applicant acknowledges the Office Action's conclusion that this "is not a design patent," the applicant urges "all words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (C.C.P.A. 1970). Under this standard the L-shaped housing must be considered outside of its aesthetic characteristics and should be considered for the structural, functional, or utility improvements. As such, an L-shaped housing which is able to better couple with the case of the PDA, secures the PDA and the adapter together in a stronger fashion without increasing the risk of damage or interference to the electrical connection and still maintains the compact size and nature of the PDA.

D. Conclusion

In view of the foregoing, applicant respectfully requests the Examiner's reconsideration and allowance of claims 1-18 as amended and presented herein. Wherefore, the applicants respectfully request reconsideration. Should the Examiner have any questions or concerns which can be resolved by a discussion with the applicant's attorney or through an Examiner's Amendment, the Examiner is invited to contact the applicant's attorney by telephone.

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Respectfully submitted,

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